A new Afrotropical Chlidanotini species (Lepidoptera: Tortricidae) inhabiting galls of white milkwood, *Sideroxylon inerme*, in South Africa

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Electracma minyops sp. n. (Lepidoptera: Tortricidae: Chidanotini) is described and illustrated from South Africa. The larvae form galls on white milkwood (*Sideroxylon inerme* L., Sapotaceae). The galls, situated about 3 to 5 cm from the tip of young shoots, cause the tips to wilt and die. About 50 % of the observed galls are also inhabited by larvae of Cecidomyidae (Diptera). Larvae of *E. minyops* were found in galls from July to November, whereas larvae of cecidomyids were present from August to November. Adults of the tortricid were relatively abundant from April to July.

Key words: Tortricidae, Chlidanotini, new species, South Africa, gall insects, white milkwood.

INTRODUCTION

Tuck (1981) provided the first comprehensive checklist of the Chlidanotini, listing 12 genera distributed worldwide and a key to the genera based on male genitalia and wing venation. He also discussed the history of studies on the tribe. Species in the Chlidanotini are probably most abundant in the Neotopics, but they are also present in the Oriental, Australian and Afrotropical regions. Razowski & Becker (1999) revised the Neotropical fauna, treating 58 species.

Razowski (1995) catalogued the Afrotropical Chlidanotini, listing *Trymalitis scalifera* Meyrick, 1912 as the only Afrotropical species. The group as a whole requires a thorough revision as the genitalia of not many species were studied. Clarke (1963) illustrated the male and female genitalia of the types of the five Australian species described by E. Meyrick, deposited in the British Museum (Natural History), now the Natural History Museum, London.

Two related genera, *Electracma* Meyrick, 1906 (type-species *E. hemichroa* Meyrick, 1906) and *Metrernis* Meyrick, 1906 (type-species *M. ochrolina*), were described by Meyrick (1906) from Sri Lanka. Clarke (1963) illustrated the type specimens, providing photographs of their facies, venation and male genitalia. The shape of the wings and the genitalia of the two are similar, but the venation is somewhat different. In *Metrernis* the forewing veins M3-Cu1A are long stalked, whereas in *Electracma* they are separated; R4–R5 are variable within the two genera. In our specimens RM3-CuA1 are separate as in *Electracma*, thus despite some other small differences we include our species in the latter genus.

Very little is known about the biology of other Chlidanotini. Interestingly, in India a member of this tribe, *Trymalitis margarias* Meyrick, attacks the seeds of the sapota or sapodilla tree, *Manilkara achras* (Mill) Forsberg, which, like milkwood, is a member of the Sapotaceae. The larvae of this species feed on the endosperm of the seeds and it is known as the sapota seed borer (Shukla 2009). Also, the host plants of the Chlidatotini are mostly unknown. Common (1965) mentioned *Mimusops parviflora* R.Br. as the food plant of *T. climacias* Meyrick in Australia.

TAXONOMY

Electracma minyops sp. n., Figs 1–5

Diagnosis. *Electracma minyops* differs from *E. hemichroa* Meyrick in having some above-mentioned characters in the venation, the long uncus and hami, and slender valva. *Electracma minyops* differs from *E. hemichroa* Meyrick in having a long slender uncus 2.5 times shorter than the aedeagus, which in *E. hemichroa* is rather stout, about nine times shorter than the aedeagus; the hami of *E. minyops* are almost as long as the uncus (rudimentary in *hemichroa*); and the valva is long, slender, with weakly convex sacculus whilst in *E. hemichroa* it is broad, rather short, with an angulate sacculus.

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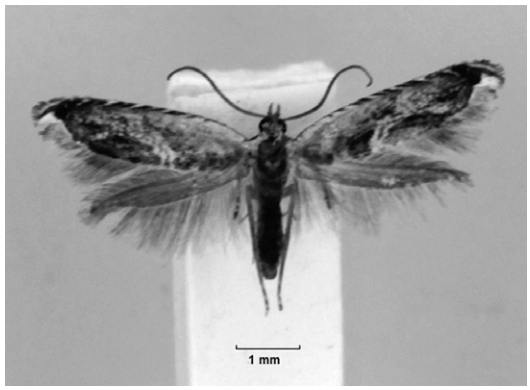

Fig. 1. Adult of *Electracma minyops*: male holotype.

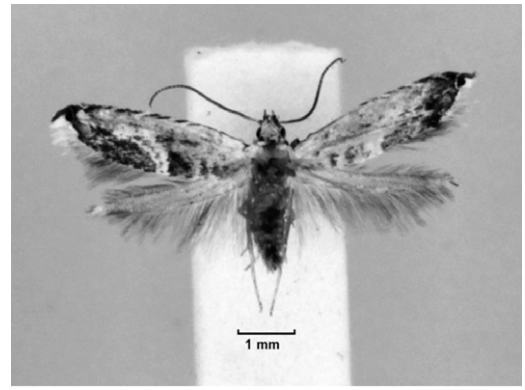

Fig. 2. Adult of *Electracma minyops*: female paratype.

Description

Wingspan 7.5–8 mm (n = 16). Head and thorax whitish cream. Forewing slender, slightly broadening medially. Costa weakly curved outwards at base, then almost straight; apex falcate; termen somewhat oblique. Ground colour white-cream with ochreous cream suffusions and sparse blackish brown dots in dorsal and terminal areas, larger dots at apex. Costal strigulae whitish cream; divisions brown. Markings indistinct. Cilia dirty cream. Hind wing slender, cream; cilia long, grey.

Variation. Forewing markings usually ill-defined, occasionally rather well developed, grey, scaled blackish, consisting of dorsobasal or postbasal suffusions and submedian diffuse blotch with straight posterior edge accompanied by postmedian blotch which extends to termen.

Male genitalia (Fig. 4). Uncus slender, long, broadening basally; socius slender, shorter than latter; hamus simple, slender, shorter than uncus; vinculum broad ventrolaterally, slender medially; valva slender, rounded caudally with long outer slit and membranous outer surface; costa distinctly sclerotized, long, rather straight; sacculus simple, weakly convex postbasally; anellus membranous; aedeagus approximately as long as ventral edge of valva, slender; coecum penis short; cornuti not found.

Female genitalia (Fig. 5). Papilla analis moderately large; apophyses short; cup-shaped part of sterigma expanding posteriorly; postostial part broad, weakly convex distally, with short lateral arms; ductus bursae simple, broad in proximal third; ductus seminalis originating from end of latter; corpus bursae oval expanding at base of signum; signum consisting of numerous slender spines short distally, three times longer proximally; accessory bursa present.

Type specimens. Holotype male: 'South Africa, Vermont, 13. VI. 2013, J.H. Giliomee col.'; genitalia on slide GS 30296 are deposited in the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Cracow, Poland. Paratypes: five males and two females with identical labels, and female genitalia on slide 30297, are deposited in the institute above. Six males and two females are deposited in the Ditsong National Museum of Natural History, Pretoria. The label data for the Pretoria specimens are: SOUTH AFRICA, W[estern] Cape, Hermanus, 34°25′S 19°15′E, 15.v.2011 (J.H. Giliomee).

Etymology. The specific epithet refers to the small

Fig. 3. Moth in resting position.

Fig. 4. Male genitalia of the holotype of *Electracma minyops* with separate aedeagus on the left.

size of the species, from the Greek *miny* (small) and *ops* (appearance).

Biology

From Vermont and Hermanus in the west to Stilbaai in the east, and beyond in South Africa, white milkwood (*Sideroxylon inerme* L., Sapotaceae) frequently exhibits dead twig tips (Fig. 6). These brown tips are particularly conspicuous during the summer and autumn and become less so only when the dead leaves drop off during winter. New growth appears from April and the shoots extend throughout the winter months. During October some of the young shoots start wilting. The wilted parts eventually die and become conspicuous brown tips. When dead twigs are examined, a roughly oval shaped swelling or gall (sometimes two) can be noticed about 3 to 15 cm from the tip (Fig. 7) from where the drying of the twig started.

Samples of twigs with galls on white milkwood were regularly (every three to four weeks) taken at Vermont from 2011 to 2013, dissected microscopically at a laboratory at the University of Stellenbosch, and the appearance of organisms noted. Attempts were made to rear the juvenile stages of insects to adults by keeping defoliated twigs with galls in damp sand inside glass jars covered with gauze. Once the adult moths emerged and their appearance had been established, more individuals were collected with a sweep net.

Tortricid larvae were observed in the galls from July to November. They produce a copious amount of frass which is retained within the gall (Fig. 8).

Fig. 5. Genitalia of a female paratype of *Electracma minyops*.

Fig. 6. White milkwood, *Sideroxylon inerme*, with dead twig tips.

No pupae were observed, so presumably pupation occurs in the soil. Moths first appeared in March and were relatively abundant from April to July, with many individuals present until September. The tiny moths sit on the upper side of leaves and when disturbed make rapid short flights (1–3 m) to other leaves and disappear under them.

Also observed in some galls from August to

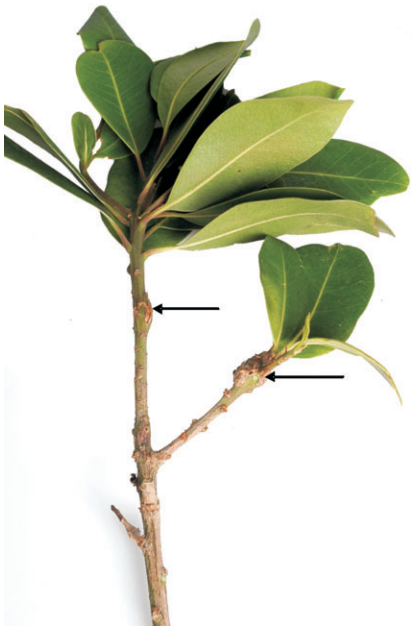

Fig. 7. Galls (see arrows) near the tips of both young twigs.

Fig. 8. Dissected gall showing at the bottom two cup-like structures in which cecidomyid larvae lived and the frass-filled cavity inhabited by a tortricid larva.

November were the orange larvae of a gall midge (Diptera: Cecidomyidae), possibly of the genus *Dasineura* Rondani (R.J. Gagné, pers. comm.). They were found in small, cup-like structures within the gall (Fig. 8). Up to 15 larvae were present in some galls. About half of the galls were inhabited by both tortricid and cecidomyid larvae, and in the rest of the galls they occurred separately. The fly larvae also pupate in the soil, but neither pupae nor adults have been found.

From January to April neither tortricid nor cecidomyid larvae could be observed inside the young galls. Perhaps the cecidomyids laid inconspicuous eggs in or on the twigs and the young, colourless larvae started feeding, causing the gall to form. Alternatively, an unknown organism or physiological process is involved. In rare instances, both moth and fly larvae were present in the galls during January and February.

ACKNOWLEDGEMENTS

We would like to thank J.W. Brown of the Smithsonian National Museum of Natural History, Washington, and M. Krüger of the Ditsong National Museum of Natural History, Pretoria, for valuable comments on the manuscript. M. Krüger also took the pictures of the set specimens and A. Jordaan of the University of Stellenbosch those of the resting moth and galls.

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Accepted 30 July 2014